

Amendments to the Claims

1-15. (cancelled)

16. (previously presented) In a communication system for communicating with a plurality of mobile nodes, the system having a plurality of home agents, the plurality of home agents managing Internet Protocol (IP) addresses in multiple address pools, the multiple pools having overlapping IP addresses and each pool being associated with a unique home agent IP address, a method comprising:

in a foreign agent, receiving a plurality of data packets from the plurality of home agents, each packet containing an IP address of the respective home agent, wherein at least one data packet destined for a given mobile node has the same assigned home IP address as at least one other mobile node;

in the foreign agent, using a combination of the assigned home IP address of the given mobile node and the IP address of a home agent to identify a unique point-to-point protocol (PPP) link for the given mobile node; and

in the foreign agent, routing the at least one data packet destined for the given mobile node to the given mobile node using the unique PPP link.

17. (previously presented) The method of claim 16, further comprising:

in the foreign agent, receiving a packet from a mobile node over a PPP link, the link associated with an associated PPP link address and the packet containing a home IP address of the mobile node, using a combination of the associated PPP link address and

home IP address to determine a unique home agent IP address, and routing the packet to the home agent using the unique home agent IP address.

18-21. (cancelled)

22. (currently amended) A communication system for communicating with a plurality of mobile nodes in a communication system, the communication system having a plurality of home agents, the plurality of home agents managing multiple Internet Protocol (IP) address pools having overlapping IP addresses, each pool being associated with a unique home agent IP address, wherein a home IP address for a given mobile node is associated with one of the multiple pools, the system comprising:

a foreign agent that uses a combination of the home IP address and an IP address of a home agent from a packet to identify a unique point-to-point protocol (PPP) link for the given mobile node; and

wherein the foreign agent routes the packet to the mobile node using the unique PPP link, and wherein the foreign agent receives a packet on a PPP link from a mobile node, the packet containing a home IP address and a PPP link address associated with the PPP link, and determines a unique home agent IP address from a combination of the associated PPP link address and home IP address, and routes the packet to the unique home agent IP address.

23-24. (cancelled)

25. (currently amended) A foreign agent for use in a communication system for communicating with a plurality of mobile nodes, wherein the communication system comprises a plurality of home agents, the plurality of home agents managing Internet Protocol (IP) addresses included in multiple address pools, the multiple address pools having one or more overlapping IP addresses and each pool being associated with a unique home agent IP address, the foreign agent comprising:

a processing device;

a storage device having a plurality of machine executable instructions that, when executed by the processing device, provide for:

using a combination of an assigned home IP address of the given mobile node and an IP address of a home agent with which the mobile node is associated to identify a unique point-to-point protocol (PPP) link for a given mobile node of the plurality of mobile nodes;

routing a packet destined for the mobile node using the unique PPP link;

receiving a packet on a PPP link from a mobile node, the packet containing a home IP address and the PPP link having an associated PPP link address;

determining a unique home agent IP address with the associated PPP link address; and

routing the packet to the home agent using the unique home agent IP address.

26-30. (cancelled)

31. (currently amended) A foreign agent for routing a data packet associated with a given mobile node, the foreign agent comprising:

machine executable instructions that when executed provide for:

processing the data packet associated with the given mobile node,
the processing including:

associating a home Internet Protocol (IP) address and a home agent
IP address contained in said data packet to determine a unique point-to-
point protocol (PPP) link address corresponding with the given mobile
node;

routing the data packet to the given mobile node via the unique
PPP link address;

maintaining a table mapping PPP link addresses to unique pairs of
home IP addresses and home agent IP addresses, and

wherein associating home Internet Protocol (IP) addresses and
home agent IP addresses is accomplished by reference to the table, such
that multiple mobile nodes having the same home IP addresses but
different home agent IP addresses may be distinguished from each other.

32. (cancelled)